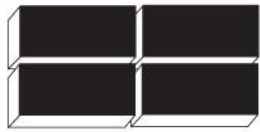


Ellsworth Air Force Base Advanced Metering Project

**A Partnership between Ellsworth AFB and MDU
Resources Group, Inc. to install advanced metering
on all large buildings at EAFB**



*This briefing represents a specific advanced metering project at Ellsworth AFB and reflects only the position of the presenter.



MDU RESOURCES

GROUP, INC.

- Based in Bismarck, North Dakota
- Celebrated our 86th year in 2010
- NYSE - MDU for over 60 years
- Over \$6B in assets
- Fortune 500 Company
- Member of the S&P MidCap 400 Index
- Over 8,000 employees in 44 states



PARTNERSHIP ...

- Ellsworth AFB and Minot AFB – Montana Dakota Utilities Co. Service Area
- ND, SD, MT, WY, MN, ID, OR, WA
- Ellsworth AFB and the MDU Resources Group, Inc. have a well developed partnership having completed numerous projects over the past decade
 - Propane Air Mix Plant / Expansion
 - Two UESC Task Orders
 - Third UESC Task Order in ongoing



The Partnership Continues...

- When EPACT 05 was passed mandating the installation of advanced electrical metering on all large buildings, EAFB and MDU Resources Group, Inc. again joined forces
- Montana-Dakota Utilities Co. was in the process of integrating advanced metering throughout their service territories in eight states for approximately 1 million gas and electric customers



Project Specifics

- Methodology for EAFB System
 - Utilize a wireless system (Itron)
 - Rely on extensive research done by MDU for their system
 - Ensure compatibility with MDU data gathering and storage system
 - Concentrate on getting basic data.
 - Linking the data with EMCS systems is outside the scope of the project
 - Controlling HVAC systems is outside the scope of the project./
 - Make Bitter Creek (MDU Resources, Inc. subsidiary) responsible for all aspects of the project/system.



Project Specifics...(continued)

- Methodology for EAFB System
 - Meter Installation
 - Electric
 - Natural Gas
 - Water
 - Data Gathering System
 - Towers
 - Server
 - Web based data display system
 - Open protocol software
 - Customized to meet EAFB's needs

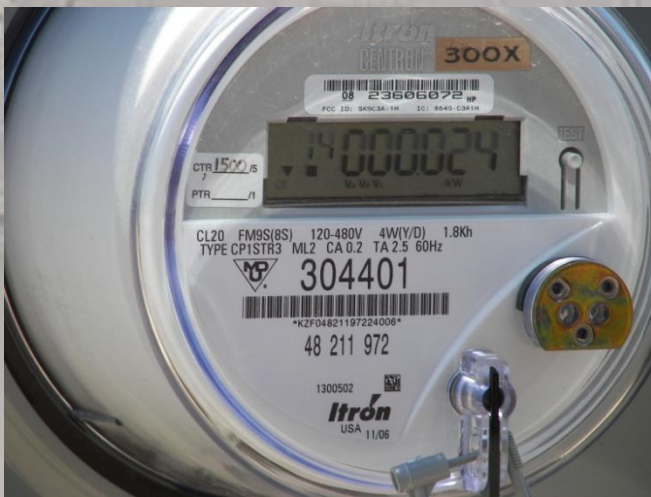


Electric Meter Installations

- Electric Meter installed on Transformers

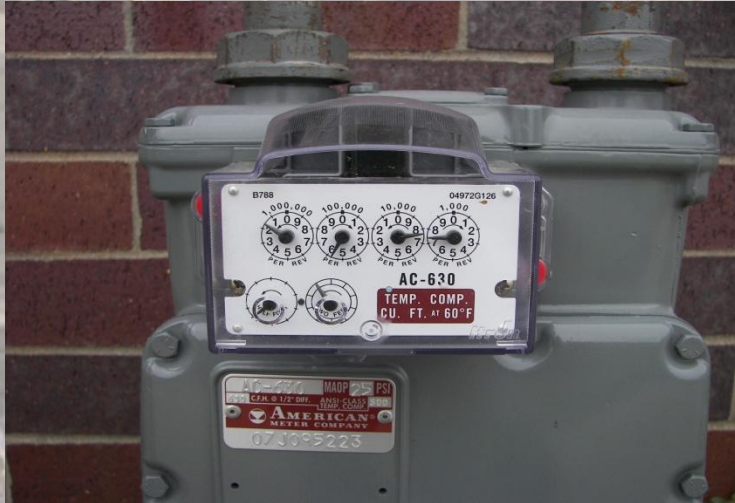


- Electric Meter with ERT



Natural Gas Meter Installations

- Small Gas Meter with ERT



- Large Gas Meter with ERT



Water Meter Installations



- Water Meter with ERT



- Remote Water ERT

Collectors



Data Usage...

- Project Programming (ACES)
 - Readily available data enables EAFB to identify potential energy saving projects
 - Metered data allows EAFB personnel to justify projected project savings
- Usage Reporting (DUERS)
- Usage Validation
 - Validate Purchased Utility Invoices
 - Validate Reimbursable Utility Invoices



Data Usage...(continued)

- Increased accountability for utility consumption
 - Building Managers
 - Building occupants
 - Reimbursable customers
- Improve ability of EAFB to respond to utility rate filings and negotiate more favorable utility rates



General Overview...

- Turn-key project development
- Proven technology
- Customizable / Expandable



- For more information on the future of the Air Force AMR standardization please contact Mike Ringenberg, AFCESA/CENE:

Mike Ringenberg

Mike.Ringenberg@tyndall.af.mil

HQ AFCESA/CENE

139 Barnes Drive Suite 1

Tyndall AFB FL 32403-5319

TEL: 850-283-6012



?

Questions

